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ABSTRACT

This paper draws on the stereotype threat hypothesis and social identity theory to examine the influence of positive and negative ability beliefs on Navajo students' achievement goals. Data were collected on 829 Navajo students in two reservation high schools. The results support the notion that Navajo students hold both positive and negative ability beliefs about school; positive and negative ability factors were negatively correlated but only moderately, suggesting a more complex relationship than expected. Positive ability belief was positively correlated with mastery and performance approach factors and negatively correlated with the performance avoidance factor. Negative ability belief was positively correlated with the performance avoidance factor but was not related to the mastery and performance approach factors. Positive ability belief was positively related to grade point average and negatively related to absences; the reverse was found for negative ability belief. Positive ability belief was not related to gender or strength of social identity (traditionalism, as indicated by remote location and Navajo language use). The findings do not support the hypothesis that a stronger social identity results in more positive ability beliefs and greater academic achievement. (Contains 24 references.) (SV)

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Positive and Negative Ability Beliefs among Navajo High School Students: How do they Relate to Students' School Achievement Goals?

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PURPOSE OF THE PRESENT RESEARCH

According to Steele and Aronson (1995) one of the affects of stereotype threat is that students stigmatized as poor academic achievers will have lower ability beliefs than students who are not labeled so. Deyhle (1995) posits that factors such as stigmatization may explain Navajo and Ute American Indians negative attitudes toward school. A central tenet of social identity theory is that individuals strive to achieve and/or maintain a positive social identity. Deyhle (1995) hypothesizes that the stronger the social identity the more likely students are to have high ability beliefs and succeed in school. The purpose of the present research is to structurally validate the constructs of Navajo high school students' positive and negative ability beliefs using Structural Equation Modeling (SEM). We examine the validity of these ability beliefs from the perspectives of stereotype threat and social identity theory. This research, therefore, sets out to examine whether the concepts of positive and negative ability beliefs can be distinguished and whether the relationships between these beliefs and students' achievement goals reflects the relations posited by Steele and Aronson, and Deyhle

THEORETICAL FRAMEWORK

Ability Beliefs

School ability beliefs have been defined as individuals' judgements about their capability to accomplish a task or achieve a specific goal. (e.g. Pintrich, Marx, & Boyle, 1993; Eccles & Wigfield, 1995; Murphy & Alexander, 2000). However, not all researchers have viewed school ability beliefs as related solely to specific domain outcomes (e.g. Murphy & Alexander, 2000; Roeser, Midgley, & Urdan, 1996). The emphasis of this research is on the relations of school ability beliefs and achievement goals (e.g. mastery and performance goals) rather than specific domain outcomes.

School ability beliefs have been shown to be related to academic goals and achievement and posited to influence choice of activities, effort expended, and persistence (e.g. Bandura, 1986; Middleton, Kaplan, & Midgley, 1998; Zimmerman, Bandura, Martinez-Pons, 1992). Students' school ability beliefs are cognitively appraised based on information from sources such as social comparison and parents, teachers and peers (Bandura, 1986; Dweck & Leggett, 1988; Schunk, 1994). Other important sources of information are students' experiences and achievement (e.g. Dweck & Leggett, 1988; Schunk, 1994).

Much of the work concerning school ability beliefs has assumed that a single continuous variable can inform us of the affects of ability beliefs. However, Middleton, et al (1998) found that different levels of school ability beliefs were associated with different aspects of students' school achievement goals. This approach, however, does not identify negative school ability beliefs. Some minority groups, such as Navajo students, may also entertain negative ability beliefs. Such negative ability beliefs could be a consequence of labeling (Deyhle, 1995). Hence, in the context of school, Navajo students may well hold positive and negative beliefs about their school abilities.

Ability Beliefs and Achievement Goals

There seems to be agreement among researchers that students' ability beliefs positively covary with a mastery goal; that is, with an improvement in scores on measures of ability beliefs there is a corresponding improvement in scores on measures of mastery goals, and the converse applies (e.g. Anderman & Young, 1994; Midgley & Urdan, 1995; Schunk, 1994). When students emphasize a mastery goal they are focused on learning, self-improvement, and effort. Some studies report positive relations between performance goals and school ability beliefs (Midgley & Urdan, 1995) while others have found negative relations (Anderman & Young, 1994). These findings suggest that there may be positive, negative or no relations between students ability beliefs and performance approach and performance avoidance goals (e.g. Anderman & Young, 1994; Middleton & Midgley, 1997; Midgley &

Urdan, 1995). Clearly, the relationships between students' school ability beliefs and performance approach and performance avoidance goals are unclear. Hence, in the present research it is believed, analogous to the partitioning of performance goals into performance approach and performance avoidance goals, partitioning school ability beliefs into positive and negative ability beliefs is of heuristic value. This positing of a dualistic conception of separate positive and negative ability beliefs is not without precedent, for example in the self-concept literature a distinction is often made between positive and negative self-concepts (e.g. Marsh, 1996; Markus & Wurf, 1987).

STEREOTYPE THREAT, SOCIAL IDENTITY, AND ABILITY BELIEFS

Two theories guide us in investigating the nature of ability beliefs and their relationship with achievement goals; these are the stereotype threat hypothesis (Steele & Aronson, 1995) and social identity theory (Tajfel & Turner, 1986; Turner, 1987; Ward, Bochner, & Furnham, 2001)

Navajo High School Students and Stereotype Threat

The anxiety associated with knowing that one is a potential target of prejudice and stereotypes is much discussed in the social sciences (e.g. Allport, 1954; Goffman 1963; Steele & Aronson, 1995; Steele & Aronson, 1997). In an essay Steele (1990) presented a concept he referred to as racial vulnerability. Steele (1990) argued that, after a lifetime of exposure to society's negative images about their ability, students are likely to internalize an inferiority anxiety. In turn, this anxiety may lead to adaptations symptomatic of academic disengagement or avoidance. Steele and Aronson (1995) in an experimental study focussed on the immediate situational threat that derives from widely held beliefs about one's group. Their concern was for the threat to individuals who are judged and treated according to the stereotype and the self-fulfilling of that stereotype. According to Steele and Aronson (1995) the individual need not even believe the stereotype. The individual need only know that the stereotype is relevant in the context.

The conclusion Steele and Aronson (1995) reach is that students who experience stereotype threat, such as Navajo high school students, are inefficient at academic tasks. They posit that this inefficiency is similar to the inefficiency experienced with test and competition anxiety (e.g. Sarason, 1972; Wine, 1971). However they suggest that the stereotype threat anxiety leads students to try hard (effort) but with impaired efficiency. Hence, they assert that the anxiety associated with stereotype threat is additional to that generally associated with test or competition anxiety. Finally, they speculate for real-life situations, that as achievement falters and this underachievement is defined in terms of stereotypes, individuals' expectations concerning their ability might decrease. Further, over time, lower ability expectations undermine achievement by undermining motivation and effort (e.g. Bandura, 1977; Bandura, 1986). This process may eventually lead students to no longer identify with schoolwork and adopt behaviors that have the effect of avoiding academic engagement (avoidance).

This theory has implications for Navajo high school students. Among Navajo high school students there is persistent underachievement (e.g. James, Chavez, Beauvais, Edwards, & Oetting, 1995; Vadas, 1995). Indeed, Deyhle (1995) posits stigmatization as a factor in explaining Navajo and Ute American Indians negative attitudes toward school. Following Steele and Aronson (1995) this may result in students holding negative beliefs about their school abilities (See also Covington, 1992, for similar arguments regarding the implications of protecting one's self-worth in the face of academic failure). In this study we examine whether we can distinguish between positive and negative ability beliefs for a group typically stereotyped as underachievers, and the relationship of these beliefs with their achievement goals.

Social Identity Theory

There is a considerable body of research concerning social identity and socio-cultural/psychological adjustment (e.g. Ward, Bochner, & Furnham, 2001). In essence, social identity theory posits that we can think of self in terms of personal and social identities (Tajfel & Turner, 1986). Tajfel & Turner posited that social identity theory makes explicit the difference between behavior that is influenced by the individual, and that which is influenced by group based processes. A central tenet of social identity theory is that individuals strive to

achieve and/or maintain a positive social identity. For low-status minority groups, social identity theory predicts three responses for members when they perceive social injustice and impermeability of boundaries precluding them access to high status group participation. In the school context this may mean that Navajo students may perceive that they do not have the same opportunity to achieve as the wider community. Hence, there are three possible responses, first, they can leave the group and this is not always possible; they are Navajo and school attendance is compulsory. Second, they can create various ways that reconstruct or redefine the dimensions that are the basis of comparison. For example, poor school achievement is consistent with how they view themselves, i.e. they accept the stereotype. Third, they can contest the dominant groups right to its superior position, for example they hold high positive ability beliefs. For a more detailed description of social identity theory see Brown (2000).

More recently some researchers have placed an emphasis on the strength of social identity (e.g. Ethier & Deaux, 1994). In fact, Deyhle (1995) posits that the stronger the social identity the more likely students will have high positive ability beliefs and succeed in school. Hence, in this study we examine whether Navajo students who are stronger in their social identity differ in their positive ability beliefs to those who are less strong in their social identity.

METHOD

Participants

Students from Kayenta High School (n=300) and Window Rock High School (n=529) participated in the survey. All students in years 9, 10, 11, and 12 participated in the data collection (year 9, n=303; year 10, n= 187; year 11, n = 164 year 12, n=160; and, missing n = 16). Both schools generally follow mainstream state prescribed curriculum. In a bid to strengthen cultural identity among Navajo children, both schools have recently introduced Navajo language classes.

Kayenta is in the relatively remote north of Navajo land where there is little industry. The major industries in the area are coal mining at Black Mesa, tourism, and farming. There is high unemployment in the area, few job prospects, and it is remote from major centers of population and industry. Such circumstances mean that graduate students seeking work need to consider relocation in order to be closer to employment centers. Kayenta is considered the more traditional of the two locations (conversations with the Kayenta High School site council in April 1998 and, the Window Rock senior student counselor, (James Arviso) January 1999). It is common to hear Navajo spoken in school meeting areas (cafeteria) and school corridors at Kayenta.

Window Rock is in the South East corner of Navajo land and about an hour's drive across the State border (Arizona/New Mexico) from Gallup (New Mexico). Gallup is a major center for American Indian artifacts; it has significant mining and tourist industries and it is well serviced by rail. Window Rock is the center of Government for the Navajo Nation. Thus, for graduate students there are more job opportunities at Window Rock and Gallup than at Kayenta. For more information about the Navajo Nation visit the Navajo web site, www.navajo land.com

Measures

Background variables.

To examine the relationship between strength of social identity and positive ability beliefs (we hypothesized that the stronger the social identity the stronger the positive ability beliefs), we developed classifying variables of near traditional and non-traditional Navajo students. Near traditional students were those who spoke Navajo at home and lived in rural locations. Non-traditional students were those who spoke English at home and lived in towns. We hypothesized that near traditional students were more likely to have a stronger social identity than non-traditional students. The near traditional and non-traditional constructs we operationalized and dummy coded were language spoken at home (Navajo = 0, English = 1),

living location we operationalized as town (0) and rural (1), and gender we operationalized as male (0) and female (1).

Latent variables.

In addition to the two ability dimensions (positive & negative ability beliefs) we included 3 achievement goals regularly used in the literature; the dimensions of mastery, performance approach and performance avoidance. The items used for each of these factors is presented in Table 1.

Insert Table 1. about here

Criterion Variables

For the purpose of validation the variables GPA and school attendance were included in the model. The data for these variables was provided by the school.

Statistical analyses

Our strategy was first to examine the unidimensionality of the scales used and the structural validity of a 13-factor model of achievement motivation among Navajo high school students. This 13-factor model comprises 2 criterion variables (GPA & absence), 3 background variables (language, location, & gender), and 8 motivational factors. In this paper, our focus is on 5 only of these motivational factors (positive and negative ability beliefs and mastery, performance approach and avoidance goals).

To examine whether positive and negative ability beliefs can be distinguished, following the conduct of Confirmatory Factor Analyses (CFA's) to test the structural validity of our model of school achievement motivation we tested whether the negative and positive ability beliefs were convergent/divergent factors by examining the correlations of these factors with other factors in our model. If the correlations of other factors in the model with the positive and the negative ability belief factors differ as predicted, then we can be reasonably confident that the two ability belief factors have convergent/divergent validity. In this regard, we adopted the following hypotheses to guide our analyses:

1. That the positive and negative ability factors would be negatively correlated;
2. That the positive ability belief would positively correlate with the mastery and performance approach factor and negatively correlate with the performance avoidance factor;
3. That the negative ability factor would positively correlate with the performance avoidance factor and negatively correlate with the mastery and performance approach factors;
4. That the positive ability factor would positively correlate with GPA and negatively correlate with absence (attendance);
5. That the negative ability belief factor would positively correlate with absence and negatively correlate with GPA;

Following these tests, we constructed models that tested the invariance of the model for the background variables (language, location, & gender). SEM offers a powerful capability for contrasting two or more groups of data where parallel data exists (Marsh 1993, 1994). Invariance of factor loadings suggests that students are responding to the items in similar ways across the groups. This offers confidence that across the groups the participating Navajo high school students perceive the items to have similar meaning. Invariant factor correlations suggest that across the groups there is agreement associations between the factors are similar (Byrne, 1998). To examine whether Navajo students who are stronger in their social identity are also stronger in their positive ability beliefs we adopted the following hypotheses to guide our analyses.

6. Following social identity theory we hypothesized that near traditional students (speak Navajo and live in rural areas) would have stronger correlations between the positive ability belief and the mastery and performance approach and avoidance factors than would the non-traditional students (speak English and live in towns). We further hypothesized that non-traditional students would have stronger correlations between the negative ability belief factor and the

mastery and performance approach and avoidance factors than would the near traditional students; and

7. Finally, we hypothesized that females would have stronger correlations between the positive ability belief and the mastery and performance approach and avoidance factors than would male students. We further hypothesized that males would have stronger correlations between the negative ability belief factor and the mastery and performance approach and avoidance factors than would female students;

We based our statistical inferences on Structural Equation Modeling (SEM) using the statistical package LISREL 8.5 (Jöreskog & Sörbom, 1996a) and Prelis 2.3 (Jöreskog, & Sörbom, 1996b).

All the measured variables were used to construct a 42 X 42 covariance matrix which became the basis for all further modeling and analyses. Confirmatory Factor Analysis (CFA's) were conducted with LISREL 8.5 using maximum likelihood estimation. Following Marsh, Balla, and Hau (1996), and Marsh, Balla, and McDonald (1988) we emphasize the Non Normed Fit Index (NNFI) to evaluate goodness of fit. In addition we present the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA) and the $\chi 2$ test statistic. We conducted CFA's to investigate the psychometric properties of the 8 motivational scales.

RESULTS

The results of the CFA's revealed that our model of school achievement motivation fitted the data well (NNFI=0.90) suggesting a well defined model (See Table 2a). We set out to see if we could distinguish between positive and negative ability beliefs among Navajo high school students. On establishing that the model fit the data well we then examined the correlations among the factors. The results for each of the 5 hypotheses associated with this part of the research are presented below.

1. The results support the hypotheses that the positive and negative ability factors would be negatively correlated ($r = -0.47$, $p < 0.001$);
2. The results support the hypothesis that the positive ability belief would positively correlate with the mastery ($r = 0.64$, $p < 0.001$)and performance approach factor ($r = 0.30$, $p < 0.001$)and negatively correlate with the performance avoidance factor ($r = -0.33$, $p < 0.001$);
3. The results support the hypothesis that the negative ability factor would positively correlate with the performance avoidance factor ($r = 0.55$, $p < 0.001$), however they do not support the hypothesis that the negative ability belief would negatively correlate with the mastery and performance approach factors. Both of these correlations were non-significant;
4. The results support the hypothesis that the positive ability factor would positively correlate with GPA ($r = 0.32$, $p < 0.001$)and negatively correlate with absence ($r = -0.27$, $p < 0.001$); and
5. The results support the hypothesis that the negative ability belief factor would positively correlate with absence ($r = 0.18$, $p < 0.01$) and negatively correlate with GPA ($r = 0.25$, $p < 0.001$).

In general terms, the results of hypotheses 1- 2 and 4-5 provide evidence of convergent and divergent validity of the two ability belief factors. Table 3. presents the correlations of interest to the present research

We then turned to the testing the hypotheses concerning social identity theory. For this part of our research we conduct tests of invariance across the 3 cohorts of language, location, and gender. Our tests revealed that the model had equivalent factor loadings, factor variances and covariances, and residual variances across the 3 cohorts (See Table 2b, 2c, & 2d). These results offer evidence that the model is structurally valid for the cohorts of language, location, and gender. The results for hypotheses 6 and 7 follow.

6 & 7. The tests of invariance for all 3 cohorts revealed that the model of achievement motivation was invariant for all three cohorts. These results do not support the hypotheses that the stronger the social identity then the more likely it is that these students will have a stronger positive ability beliefs than students whose social identity is less strong. Nor do these results support the hypothesis that there are gender differences. Not only were the factor loadings and factor correlations between the groups invariant but also the residual variances for each of the items was invariant for each of the groups. Such a result strengthens the argument concerning students responding to the items in similar ways (Byrne, 1998). Hence, in this model of achievement motivation there is no difference between the groups concerning their positive ability beliefs.

Insert Tables 2 & 3 about here.

Vadas (1995) suggested that non-traditional Navajo students were more likely to experience identity crisis than near traditional Navajo students. Hence from the perspective of stereotype threat we could have hypothesized that non-traditional students would have stronger negative ability beliefs than students who are near traditional. Had we done so, we would not have found support for this hypothesis in this study.

SUMMARY AND CONCLUSION

For achievement goal theory, these findings demonstrate the utility for future research of partitioning ability beliefs into positive and negative constructs. Such partitioning may add vital insights and information concerning the contrary findings about the relationship of ability beliefs and performance approach and performance avoidance goals. It is worthy of note that the negative ability belief is not related, contrary to expectations, to either the mastery or approach goals. Had this been the case, and given that the negative ability belief factor behaved in the predicted fashion in its relationship with other factors, we could have concluded that positive and negative ability beliefs relate to achievement goals as opposites. However, the moderate correlation of $r = -0.47$ between positive and negative ability beliefs together with the overall results suggest that the picture is a little more complex. While the wording of the negative ability belief items are not directly opposite of those used in the positive ability beliefs they are, perhaps, sufficiently close to expect a stronger correlation between the positive and negative ability belief factors. Hence, we must conclude that although we are satisfied that there is empirical ground to support the notion that Navajo students hold both positive and negative ability beliefs about school, we must also conclude that the results raise further questions that are beyond the scope of this paper.

The results reported in this paper add to the literature concerning the characteristics of Navajo high school students' school achievement motivation. The linkage that we drew between stereotype threat and negative ability beliefs is theoretical. It seems reasonable to assert that students may entertain good and bad ideas about school; that is, there are things about school that students find attractive and things that are less so- perhaps even to be avoided. Steele and Aronson (1995) posit a link between stereotype threat and students' low ability beliefs. These low ability beliefs follow students' failure at school and is attributable to stereotype threat. In our research, we do not have a measure of stereotype threat. Instead we infer stereotype threat from the situation of the Navajo. According to the literature Navajo students relatively underachieve at school and experience the negative affects of stereotyping (Deyhle, 1995). Hence, we expected there to be negative ability beliefs among Navajo students. However, we found no evidence to suggest that there are differences between near traditional and non-traditional students concerning their ability beliefs. Clearly this raises questions concerning the generalization of the concept of negative ability beliefs. For example, can these results be replicated among non American Indian populations? If so, do the relationships of other factors with the negative ability differ between populations? In addition, the inclusion of a measure of anxiety would be consistent with the Steele and Aronson hypothesis and enrich the research by mapping the relationship of anxiety and

negative ability beliefs among populations that both experience and do not experience, stereotype threat.

Limitations of the Present Research

Concerning the hypothesis related to social identity theory, the results of the present research do not seem to support the notion that the stronger individuals' social identity, then the stronger their ability beliefs and the more likely it is that they will achieve at school. However, we recognize that the measures used for strength of social identity could be stronger to test this hypothesis. In addition, the difference between these groups (near and non traditional), based on the classifications of language and location, may not be sufficient for the purpose intended in the present research. We recommend that future research testing this hypothesis use more disparate groups and/or improved measures of strength of social identity.

Finally, there is a need to investigate further the nature of negative ability beliefs among students with different cultural heritages. The present research is also limited in its ability to establish causal relations among the factors. Longitudinal research in which the relations of the factors in the model can be investigated over time is needed to address this issue.

Table 1. List of Items used in the Present Research

MASTERY (MASTERY) SCALE (4 ITEMS).

B33 I like to see that I am improving in my schoolwork.

B40 I work hard to try to understand something new at school.

B56 When I am improving in my schoolwork I try even harder.

B89 I am always trying to do better in my schoolwork.

PERFORMANCE APPROACH (APPROACH) SCALE (4 ITEMS).

B1 I want to be better at class work than my classmates.

B2 Winning is important to me.

B14 I am happy only when I am one of the best in class.

B76 I work harder if I am trying to be better than others.

PERFORMANCE AVOIDANCE (AVOIDANCE) SCALE (3 ITEMS).

B80 Trying hard at school is not much fun if the competition is too strong.

B95 I only like to do things at school that I am confident at.

B98 I always chose easy work at school so that I don't have too much trouble.

ABILITY BELIEF SCALES.

Positive ability beliefs (Sure) scale (4 items).

B75 I am very confident at school

B69 Generally I am pleased with myself at school.

B83 I think that I can do quite well at school.

B93 I succeed at whatever I do at school.

Negative ability beliefs (Unsure) scale (5 items).

B45 At times I feel that I am not good at anything at school.

B58 No one pays much attention to me at school.

B67 I often think there are things that I can't do at school.

B77 I wish I had a little more confidence in my schoolwork.

B81 I often worry that I am not very good at school.

Table 2a. Base 13-factor model

13-factor model with mastery and utility as a single factor CU	1245.30	743	0.90	0.91	0.033(RMSEA[a] <.05=1.00)	Uniquenesses of items B48 and B38 free to correlate

Table 2b. Fit indices for the solutions of the 13-factor model invariant factor loadings

Model	Chi	df	NNFI	CFI	RMSEA	Comments
M23 13-factor model baseline – Language	1764.84	1428	0.93	0.94	0.026(RMSEA[a] <.05=1.00)	
M24 13-factor model factor loadings – Language	1779.32	1457	0.94	0.94	0.024(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 14.58 Δdf = 29 NS
M25 13-factor model baseline – Location	1635.73	1428	0.96	0.96	0.020(RMSEA[a] <.05=1.00)	
M26 13-factor model factor loadings – Location	1643.24	1457	0.96	0.97	0.019(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 7.51 Δdf = 29 NS
M27 13-factor model baseline – Gender	1693.52	1428	0.94	0.95	0.021(RMSEA[a] <.05=1.00)	
M28 13-factor model factor loadings – Gender	1706.55	1457	0.95	0.95	0.020(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 13.03 Δdf = 29 NS

Table 2c. Fit indices for the solutions of the 13-factor model invariant factor loadings, factor covariances and variances

Model	Chi	df	NNFI	CFI	RMSEA	Comments
M29 13-factor model baseline – Language	1764.84	1428	0.93	0.94	0.026(RMSEA[a] <.05=1.00)	

M30 13-factor model factor correlations – Languag	1826.97	1535	0.94	0.95	0.023(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 62.13 Δdf = 107 NS
M31 13-factor model baseline – Location	1635.73	1428	0.96	0.96	0.020(RMSEA[a] <.05=1.00)	
M32 13-factor model factor correlations – Location	1665.11	1535	0.97	0.98	0.014(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 29.38 Δdf = 107 NS
M33 13-factor model baseline – Gender	1693.52	1428	0.94	0.95	0.021(RMSEA[a] <.05=1.00)	
M34 13-factor model factor correlations - Gender	1738.53	1535	0.96	0.96	0.017(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 45.01 Δdf = 107 NS

Table 2d. Fit indices for the solutions of the 13-factor model invariant factor loadings, factor covariances and variances and factor residual variances

Model	Chi	df	NNFI	CFI	RMSEA	Comments
M35 13-factor model baseline – Language	1764.84	1428	0.93	0.94	0.026(RMSEA[a] <.05=1.00)	
M36 13-factor model factor residual variance – Language	1859.61	1575	0.95	0.95	0.022(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 94.77 Δdf = 147 NS
M37 13-factor model baseline – Location	1635.73	1428	0.96	0.96	0.020(RMSEA[a] <.05=1.00)	
M38 13-factor model factor residual variance – Location	1680.21	1575	0.98	0.98	0.012(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 44.48 Δdf = 147 NS
M39 13-factor model baseline – Gender	1693.52	1428	0.94	0.95	0.021(RMSEA[a] <.05=1.00)	
M40 13-factor model factor residual variance - Gender	1757.05	1575	0.96	0.97	0.015(RMSEA[a] <.05=1.00)	$\Delta\chi^2$ = 63.53 Δdf = 147 NS

Note: [a] = P-Value for Test of Close Fit
CU = Correlated Uniqueness

Table 3. Correlations Among the 13 Factors of a Model of School Achievement Motivation

NOTE THAT THE CORRELATIONS OF INTEREST ARE EMBOLDEN.

	Language	Location	Gender	Absence	GPA	Persval
Language	1.00					
Location	-0.26	1.00				
Gender	-0.09	0.01	1.00			
Absence	-0.14	0.02	0.07	1.00		
GPA	0.08	-0.11	0.14	-0.41	1.00	
Persval	0.07	-0.03	0.12	0.00	0.07	1.00
PosAbil	0.08	-0.04	-0.04	**-0.27*** **	**0.32*** **	0.26
NegAbil	0.06	0.01	0.21	**0.18*** **	**-0.25*** **	0.06
Approval	0.05	0.12	0.07	-0.04	-0.02	0.14
Concern	0.15	0.00	0.32	-0.07	0.18	0.42
Mastery	0.18	-0.06	0.13	-0.11	0.24	0.48
Approach	0.05	0.04	-0.31	-0.06	0.01	0.17
Avoidance	-0.04	0.11	-0.18	0.15	-0.36	-0.05

	PosAbil	**NegAbil**	Approval	Concern	Mastery	Approach
PosAbil	**1.00**					
NegAbil	**-0.47*** **	**1.00**				
Approval	0.30***	0.19**	1.00			
Concern	0.39***	-0.01	0.33	1.00		
Mastery	**0.64*** **	**0.06**	0.41	0.54	1.00	
Approach	**0.30*** **	**0.07**	0.65	0.14	0.38	1.00
Avoidance	**-0.33*** **	**0.55*** **	0.20	-0.12	-0.21	0.13

	Avoidance
Avoidance	1.00

Note: * = $p < 0.05$
** = $p < 0.01$
*** = $p < 0.001$

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